

NYASALAND



PROTECTORATE

Report of the
DEPARTMENT
of
AGRICULTURE

For the year 1948

PART I

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ANNUAL REPORT

DEPARTMENT OF AGRICULTURE

1948

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POLICY

There was no major change in agricultural policy which is to conserve the natural resources of the Protectorate, to promote the output of foodstuffs in variety, quantity and quality, to increase the earning power of the individual from the land, and in all these things to develop in him a sense of his responsibility for the future. Care has also been taken to maintain a spirit of co-operation, not only between all ranks within the Department but particularly in their relationships with all classes and sexes of the African community and its administrative bodies.

2. There was some modification of previous policy with regard to demonstration plots. These have proved of doubtful value and in many areas have been abandoned in favour of demonstrations in the gardens of the African cultivators themselves. It is apparent that when gardens are maintained by any form of pressure, whether Departmental or Administrative, and such maintenance is known to depend upon government funds which are believed to be limitless and with which Government may call on labour in any number at any time, they are regarded with suspicion and consequently fail to impress. For demonstration work therefore, the greatest reliance is now placed on selected indigenous cultivators who are persuaded to adopt improved methods of agriculture.

3. Unfortunately, demonstration and similar methods are often in themselves insufficient to safeguard the productivity and fertility of the land, and recourse has to be had to the authority of law to enforce compliance with primary and essential conservation requirements.

4. Controlled produce marketing continued to expand satisfactorily under appropriate legislation and additional permanent markets were established at a number of centres in the Central and Southern Provinces in pursuance of Government's policy to provide producers with more adequate facilities for the disposal of their crops and thus to encourage production.

5. The lack of adequate food reserves in the Protectorate continued to cause concern and all field officers applied constant propaganda to increase supplies. The high prices paid for tobacco and cotton mitigated against much success being achieved, and by the end of the year the position was serious in parts of the Southern Province and to a lesser degree elsewhere.

6. On the whole, the year was one of steady progress in arresting soil deterioration, but there are yet few areas in which even the simplest conservation measures are adopted universally or in which a system of agriculture capable of building up fertility is practised.

7. A full account of experimental work undertaken by the Department is contained in Part II of this Report which is published separately.

WEATHER CONDITIONS

8. Throughout the Protectorate the rainfall was considerably higher than normal, particularly in the Central and Southern Provinces where many areas recorded 10 inches or more in excess of the past ten-years' average. A further factor was a decided shortage of sunshine during the wet season, the daily mean for the Protectorate being 5.35 hours which is approximately 15 per cent. less than normal.

9. In the Central Province, planting was earlier than usual but very uneven and heavy rain from early December until April adversely affected crops.

10. The weather in the Southern Province was localized to a much greater degree than usual. In the Zomba and Fort Johnston Districts, rain was continuous from early November until April except for one dry spell during the last fortnight of January. It was too wet for most crops, particularly tobacco, the harvesting and curing of which became extremely difficult. Chiradzulu and Mlanje had more sunshine and an additional dry sunny spell in March, while the weather during May was ideal for harvesting and drying crops. Conditions in the southern section of the Province were reasonably good despite two long dry periods in October/November and January/February which adversely affected the early crops of maize and beans. The western districts had no good planting rain until December when, however, it became excessive. The latter part of the wet season, *i.e.* January to April, was satisfactory although the unsettled weather and the unseasonal thunderstorms in April and May delayed the ripening and harvesting of most crops. The dry season was normal in all Provinces.

11. The total rainfall for the six wet and six dry months are shown in the following Table :—

District	Stations	Total Rainfall	
		Nov. 1st, 1947 to April 30th, 1948	Total Rainfall May 1st to October 31st, 1948
PORT HERALD	Port Herald Experimental Stn.	25.96	4.46
	Makanga Experimental Stn. ..	34.67	2.82
	Tengani	28.70	3.31
	Chididi Mission	74.41	16.95
CHOLO	Cholo Boma	60.22	7.24
	Tung Experimental Stn. ..	45.75	3.52
	Masabanjati	58.96	10.80
	Makwasa	52.39	4.67
	Kamponji	59.45	5.12
	Mandimwi	61.87	5.64
	Tekerani Mission	59.90	11.52
MLANJE	Mlanje Tea Experimental Stn.	76.51	10.38
	Glenorchy	58.12	7.33
BLANTYRE	Chileka	32.74	1.63
	Mwanza	44.20	3.52
	Lisungwe	29.46	1.09
	N.T.B. Limbe	55.89	4.96
	Blantyre Boma	47.98	3.42

District	Stations	Total Rainfall	
		Nov. 1st, 1947 to April 30th, 1948	May 1st to October 31st, 1948
ZOMBA	Zomba Experimental Stn.	71.73	1.79
	Malosa	55.48	.03
LIWONDE	Mlomba N.T.B.	49.66	1.58
	Nyambi N.T.B.	30.95	1.99
FORT JOHNSTON	Fort Johnston Boma	40.76	.98
	Jalasi Plot	46.18	1.84
DEDZA	Dedza Boma	49.07	2.58
LILONGWE	Lilongwe N.T.B.	43.07	.88
	Nathenje	42.90	1.83
	Mponela	43.16	—
	Nsaru	42.85	1.33
	Likuni	52.16	.49
FORT MANNING	Ft. Manning Boma	54.86	3.27
DOWA	Dowa Boma	44.07	.70
	Mwera Hill	51.48	1.13
	Lisasadzi	28.33	No records
	Kota Kota Boma	69.65	.84
CHINTECHE	Vizara	66.98	17.26
MZIMBA	Mzimba Boma	30.46	.05
KARONGA	Karonga Dept. of Agriculture	38.83	1.57
	Nchenachena	28.69	2.88

PRODUCTION AND EXPORTS

12. The production and acreage of the principal crops grown by Europeans are given in the following Table :—

		1947		1948	
		Acreage	Yield in lbs.	Acreage	Yield in lbs.
Tea	..	20,788	12,927,829	21,201	14,304,167
Tung	..	12,668	1,620,456	16,133	1,579,544
Tobacco	..	5,617	2,549,424	7,464	2,701,646
Sisal	..	1,279	552,000	1,279	742,000
Cotton (lint)	..	358	79,151	855	348,662
Rubber	..	1,430	95,400	1,430	114,300
Soya Beans	..	1,758	883,040	1,916	1,174,977

13. The production of the two principal native-grown crops, *viz.* cotton and tobacco, are given below :—

		Amount sold in lbs.	
		1947	1948
Cotton	..	12,029,953	17,924,169
Tobacco	..	23,915,380	22,665,197

14. The exported amounts and values of the various items of agricultural produce and raw materials were as follows :—

		1947		1948	
		lbs.	£	lbs.	£
Beeswax	..	12,137	910	7,256	596
Capsicums and Chillies	..	52,737	1,320	21,357	677
Cotton (lint)	..	3,704,453	189,733	4,905,842	369,145
Cotton (seed)	..	2,046,058	2,752	1,580,472	6,610
Fibre (sisal)	..	255,061	4,414	428,521	12,023
Potatoes	..	122,346	354	3,538	15
Maize and Maize flour	..	432	3	—	—
Rubber	..	168,750	9,654	122,400	6,282
Soya beans	..	1,619,078	10,650	983,724	11,625
Strophanthus	..	8,352	836	10,749	1,462
Tea	..	12,939,828	849,172	15,070,655	1,350,445
Tobacco leaf :					
fire-cured	..	9,817,896	693,880	12,994,808	998,174
flue-cured	..	1,592,782	152,410	1,502,583	197,738
air-cured	..	1,713,785	121,836	2,480,387	273,853
Tobacco strips :					
fire-cured	..	3,586,153	289,121	4,763,324	517,167
flue-cured	..	600,062	71,820	572,196	95,647
air-cured	..	2,413,655	192,802	1,325,210	160,486
scrap	..	76,937	2,898	161,746	6,292
stems	..	197,772	1,648	45,894	692
Tung oil	..	157,305	16,504	801,684	66,966
Tung seed	..	2,313	179	26,746	490
Castor seed	..	26,515	111	97,499	800
Beans	..	2,407,730	17,972	2,086,077	18,160
Groundnuts	..	80,644	636	3,060	34
Rice	..	1,145,067	8,603	22,290	289
Vegetables	..	659,644	6,629	655,350	6,645

TOBACCO

15. **NATIVE TRUST LAND.** The Central Province crop was $2\frac{1}{2}$ million lbs. less than in 1947 although the number of growers and acreage showed no significant difference. The main reason for this decrease was the unfavourable weather, excessive rain causing the loss of many seedlings by damping off in the nurseries and resulting in only small plants being available for the fields, many of which were washed out by subsequent heavy rain. Those which survived made very poor growth and had to be topped down to four to six leaves as compared with the more usual seven to nine. Fortunately conditions improved by April and when marketed the leaf, though short, was generally of good heavy quality.

16. In the Southern Province most of the crop was planted out and established before the end of December and in the main areas stands were satisfactory. Generally the growing conditions were reasonable except that the alternating periods of heavy rain and hot sunshine predisposed the plants to low flowering and short leaf. Harvesting commenced in February and continued into March but the late rains, especially in the air-cured areas, made harvesting precarious and curing difficult. The total crop was 600,000 lbs. greater than that of 1947, an increase of 23 per cent., and the number of growers increased by 54 per cent. Generally the quality of the tobacco was poorer than in 1947; pole-burn was serious and owing to inadequate barn accommodation for curing ground wilting increased markedly.

17. Markets opened on 17th May and were featured by three main economic and practical considerations:—

(i) After purchase the tobacco was packed without regrading as for the first time the Native Tobacco Board employed commercial graders to prepare the leaf for the Auction Floors.

(ii) Prices were fixed for the season. This removed uncertainty and rumours and simplified the buying of the crop, and was at the same time welcomed by the growers.

(iii) The price of low grade tobacco was deliberately fixed at a low figure, the X grade being purchased at $\frac{1}{2}$ d per pound. In the previous year the price of this grade had varied between 4d and 6d and at this high figure there had been little incentive to the growers to grade carefully. The severe financial discrimination against low grade leaf in the 1948 season resulted in a pronounced improvement in the handling and grading of the crop.

18. **ESTATE PRODUCTION.** With the exception of air-cured tobacco there was a slightly higher acreage under all types of tobacco and an increased tonnage of leaf was produced.

TABLE 1. TOTAL TOBACCO SOLD OVER THE AUCTION FLOORS

		1947	1948	1947	1948
		<i>lbs.</i>	<i>lbs.</i>	<i>Average price-pence per lb.</i>	<i>Average price-pence per lb.</i>
Flue-cured	.. Private Estates—European and Tenant grown ..	2,738,977	2,554,327	22.80	25.96
Fire-cured	.. Private Estates—European and Tenant grown ..	925,686	7,616,580	9.94	14.90
	.. Native Trust Land ..	15,849,275	13,494,300	9.94	16.14
Air-cured	.. Private Estates—European and Tenant grown ..	196,580	2,863,770	9.74	19.88
	.. Native Trust Land ..	1,157,604	1,247,780	9.74	21.10
Burley	.. Private Estates—European and Tenant grown ..	7,806	983,690	9.74	22.88
	.. Native Trust Land ..	nil	4,294	nil	22.88
		<u>20,875,928*</u>	<u>28,764,741</u>		

*Up to and including the 1947 season it was not compulsory for all tobacco to be sold over the Auction Floors.

TABLE 2. NATIVE TRUST LAND CROP

		<i>No. of growers</i>		<i>Average yield of cured leaf per grower (lbs.)</i>		<i>Average return per grower</i>	
		1947	1948	1947	1948	1947	1948
Central Province	..	75,727	79,774	193	148	135s	108s
Southern Province	..	13,284	20,531	204	164	153s	111s

COTTON

19. The number of growers in the Southern Province increased by 36.8 per cent. to 41,554 whilst in the Central Province the number was more than double that of 1947. The incentive behind these large increases was the higher prices paid for the previous crop, and again for the 1948 crop growers were well satisfied with their monetary return.

20. The planting season was very uneven. In the main Lower River District January was dry and delayed planting until February but in the Blantyre, Zomba and Fort Johnston Districts and in the Central Province cotton areas, planting was mainly accomplished during December, 1947.

21. In the Lower River District growing conditions during April and May were ideal, and in other areas the weather was generally favourable though in parts of the Blantyre District heavy rains during the early period of growth rendered weeding difficult.

22. The incidence of bollworm damage during March on the early crop was not heavy, but the second phase of the bollworm attack assumed serious proportions in the Tengani and South Shire areas and tended to cause a lag in cotton marketing about half-way through the buying season. In Mlolo's and Makwira's areas heavy stainer damage prevented much of the late-sown cotton from reaching maturity.

23. The only area not recording an increase in acreage cultivated was Balaka, where cotton has to compete with the more popular tobacco crop.

24. There was more opposition than usual to uprooting, particularly throughout the Lower River District since at the end of the season many plants still carried large numbers of bolls.

25. The crop was purchased on Government account through normal trade channels. The Southern Province marketed a total of 7,096 short tons of seed cotton, constituting a new record, whilst in the Central Province 213 tons were purchased.

26. In the winter crop area of Karonga in the Northern Province planting conditions were good and some 2,715 growers planted 3,251 acres of cotton. Growing conditions were favourable and the estimated crop is expected to exceed 400 short tons of seed cotton.

27. The cotton season was on the whole most satisfactory; planting, growing and harvesting weather was favourable, and insect damage was not unduly serious, though the ravages of bollworm attack had as usual a seriously limiting effect on yield. The total crop was a record one, and the marketing, ginning and export of the crop was carried out smoothly.

TABLE 3. SEED COTTON PRODUCED ON NATIVE TRUST LAND

District			Quantity purchased in grades and percentage of each grade								
			Grade I				Grade II				Total
			lbs.		%		lbs.		%		lbs.
Blantyre	..	..	705,411	..	94.05	..	44,655	..	5.95	..	750,066
Chikwawa	..	..	8,009,165	..	82.52	..	1,697,476	..	17.48	..	9,706,641
Dedza	..	..	198,863	..	93.04	..	14,879	..	6.96	..	213,742
Dowa	..	..	124,641	..	90.36	..	13,282	..	9.64	..	137,923
Fort Johnston	..	..	131,264	..	89.91	..	14,743	..	10.09	..	146,007
Karonga	..	..	1,305,816	..	96.99	..	40,616	..	3.01	..	1,346,432
Kota Kota	..	..	61,897	..	79.66	..	15,811	..	20.34	..	77,708
Lower River	..	..	2,987,451	..	77.01	..	891,936	..	22.99	..	3,879,387
Ncheu	..	..	14,289	..	84.08	..	2,707	..	15.92	..	16,996
			13,539,797	..	83.19	..	2,736,105	..	16.81	..	16,274,902

TABLE 4. SEED COTTON PRODUCED BY NATIVE TENANTS ON PRIVATE ESTATES

District		Quantity purchased in grades and percentages of each grade								
		Grade I				Grade II				Total
		lbs.		%		lbs.		%		
Chikwawa	..	574,800	..	65.25	..	306,127	..	34.75	..	880,927
Cholo	..	383,660	..	56.87	..	291,023	..	43.13	..	674,683
Karonga	..	88,311	..	94.19	..	5,346	..	5.71	..	93,657
		1,046,771	..	63.47	..	602,496	..	36.53	..	1,649,267

TABLE 5. TOTAL SEED COTTON PRODUCTION

Native Trust Land	16,274,902
Native Tenants on Estates	1,649,267
European Estate Production	348,662
	18,272,831 lbs.

TEA

28. Weather conditions in both the Mlanje and Cholo tea areas were generally more favourable than during the previous year, and some very good early flushes of tea were plucked. Although wages were increased during the year, and in Mlanje the cash allowance for food was doubled, shortage of labour was again acute. As in 1947 the supply of sulphate of ammonia, the main ingredient of tea fertilizer mixture, was much below requirements. Despite these disadvantages production increased over the 1947 figure by more than one million lbs. to 14,304,167 lbs.

TUNG

29. Returns made to the Department by growers showed the total area under tung in the Protectorate at 30th September, 1948, as 16,133 acres of which 14,445 was *Aleurites montana* and 1,688 acres *Aleurites fordii*. Of this total 8,730 acres is only three years old or less, and is therefore not yet in bearing. The 1948 crop was harvested from 7,403 acres in bearing or partial bearing and amounted to 1,579,544 lbs of seed of which 1,413,314, lbs was *Aleurites montana* and 166,220 lbs *Aleurites fordii*. From this production 216 long tons of oil was expressed all of which was sold by the Tung Board to the United Kingdom at prices ranging from £150 to £165 per long ton f.o.b. Beira.

30. The fact that the total production of oil was approximately the same as in 1947 is mainly due to failure to pay sufficient attention to the proper cultivation and manuring of plantations. This is partly attributable to a general shortage of labour and to the difficulty of obtaining adequate supplies of nitrogenous fertilizers, but there is also the tendency amongst a number of growers who are also producers of tea or tobacco to concentrate their labour and attention on these (at present) more profitable crops and to neglect their tung plantations. This is unfortunate for the future of the industry as there is now a considerable acreage of tung which has deteriorated so markedly that it will be difficult, if not impossible, to restore it to good condition.

MINOR CROPS

WHEAT

31. Inadequate late rains curtailed the crop in the Northern Province and only 12 tons were brought to the markets. There was a considerable increase in the Central Province crop much of which was retained by the growers for domestic use. At Neno an increased acreage resulted in a crop of 217 tons, representing a 14 per cent. increase over 1947. A small area was planted at Cholo and with an excellent growing season higher yields than usual were obtained. The total quantity of wheat marketed in the Protectorate was 447 tons compared with 302 tons in the previous year.

RICE

32. The light early rains in Karonga did not give the crop a good start and although the number of growers increased from 6,014 in 1947 to 8,480 the actual amount of paddy sold in the markets was only 938 short tons, 38 less than in 1947. Rice-growing in Mzimba and Chinteché continues to be on a comparatively small scale and is almost entirely for the local markets and domestic consumption. At Kota Kota the number of growers was 4,182 as against 2,702 in the previous year but as flooding was favourable production increased from 487 short tons in 1947 to 764 tons in 1948. In the Southern Province there was a drop of nine per cent. in the tonnage of paddy passed through produce markets but it is estimated that total crop was considerably greater than in 1947. In the Mlanje rice area, which is now the most important in the Southern Province, weather conditions were reasonably good for the early plantings and although less favourable for later sowings the crop was generally satisfactory. A poor crop was harvested both from the shores of Lake Shirwa and from the Fort Johnston area of Lake Nyasa owing to the fact that both lakes maintained an abnormally high level. The total tonnage of paddy marketed in the Protectorate was 2,242 short tons, compared with 1,996 in 1947.

EUROPEAN POTATOES

33. The quantity of potatoes marketed during 1948 in the Protectorate produce markets was 150 tons, 19 tons more than in 1947. As in previous years a great proportion of the crop was sold across the Portuguese border and details of quantities are not available.

MAIZE

34. The amount of maize purchased in Native Produce Markets fell from 8,384 short tons in 1947 to 7,624 short tons in 1948, the decrease being most marked in the Southern Province where only 1,469 short tons were bought as against 2,929 tons in the previous year. With the exception of the Northern Province the crop was not unduly affected by the weather and growers retained a much larger percentage than usual for their own use.

GROUNDNUTS

35. There was no production of groundnuts for export in the Northern Province but considerable quantities were grown for local and home consumption. In the Central and Southern Provinces 2,019 short tons were marketed; an increase of 158 short tons over 1947. The indication everywhere is that more and more groundnuts are being used as food and with the high prices being offered for the two main economic crops, cotton and tobacco, there is little need for the natives to sell other products.

PULSES

36. Pulses exceeded the 1947 figure of 1,410 by 380 short tons, the greater proportion of the increase being in the Southern Province where the crop was generally satisfactory, particularly the winter crop of grams, pigeon peas and dolichos beans.

SESAME

37. This crop competes mainly with cotton and as the price offered is a penny per lb. less, only the most enthusiastic growers remain in production. Unfavourable weather affected the crop adversely in all the main growing areas and less than nine short tons were sold as against 20 in 1947.

COFFEE

38. The small coffee industry centred on Nchenachena has been most disappointing and the number of growers has declined from 74 in 1942 to 38 in the current year. This is despite the fact that the Nchenachena experimental plots amply testify to the suitability of the area for coffee properly tended, and despite a very adequate price. Number one grade was sold for 1s—8d per lb. and number two for 5d, but only one ton was marketed.

SORGHUM

39. The season was not unfavourable to the crop and good yields were reported from most areas although the tonnage offered for sale in the Southern Province fell by 16 per cent. No sorghum was sold in the two other Provinces. The tonnage sold was 377 short tons as compared with 448 in 1947.

PESTS, DISEASES AND GAME

PESTS

40. In the Protectorate generally there was no serious outbreak of any pest, although in the Southern Province the depredations of the Elegant Grasshopper (*Zonoceros elegans*, Thnb.) appeared to increase in severity. In the lower areas of Cholo District this pest caused appreciable damage to early-planted cotton, and in the Lower River District losses caused in early-planted cotton, cereals, pulses and other food crops were in many cases severe.

41. The damage caused by the Red Bollworm (*Diparopsis castanea*, Hmps.) to the cotton crop was not as great as in 1947, although the second phase emergence was large and in the Port Herald Section destroyed most of the first crop. Damage caused by stainers was more prevalent especially in the Mlolo and Makwira areas of the Lower River District. Damage to bolls was also caused by the Pentatomid, (*Calidea dregii*, Germ.) and the Capsid (*Helopeltis bergrothi*, Reut.).

42. In no tobacco area was incidence of Eelworm (*Heterodera marioni*, Corn.) high, and the indication recorded in 1947, that incidence was increased when chick-pea followed tobacco, was not substantiated. At the Lisasadzi Tobacco Station, cutworms (*Agrotis* spp.) caused severe losses in planted-out tobacco although in the nurseries damage due to these pests was slight.

43. In the tung area the severe drought at the end of the year caused an attack by Mealy bug (*Pseudococcus perniciosus*, W & N) which spread rapidly in a localized area on the Tung Experimental Station, but only on four trees was infestation at all high.

44. No major outbreak occurred of either *Busseola fusca*, Hmps. in maize or *Chilo suppressalis*, Walk. in sorghum, although these pests are endemic in many areas in both crops. Maize Stalk-borer was prevalent locally in the Mlanje, Blantyre and Fort Johnston areas and in the Lower River District.

45. Tea continued to enjoy freedom from serious attacks of any insect pest. On one estate, the young foliage of bushes in a very limited area was skeletonized by the Rutellid beetle (*Popillia browni*, Kolb.).

LOCUSTS

46. There were no reports of locust activity in the Protectorate throughout the year.

DISEASES

47. Smut was common on ratoon sorghum and markedly reduced yields in the Mlanje and Fort Johnston areas. The incidence of maize streak appears to have increased. In the high rainfall regions, which are in the main unsuitable for tobacco, frenching and cabbaging were of frequent occurrence. Pole burn and rotting as a result of bad weather conditions while curing, as well as inadequate barn accommodation, was more prevalent than usual. Late planted groundnuts in all areas were heavily infected with mosaic. Witch Weed (*Striga lutea*) continued to take its toll of the grain crops in most parts of the Southern Province particularly on the light soils of the Chiradzulu and Blantyre Districts.

GAME

48. The ravages by game continued to be a limiting factor to increased crop production in most of the rich areas bordering on lakes, rivers and Forest Reserves. Hippopotami, both along the Shire and on the Lake, caused much damage to crops, especially rice.

WORK OF THE DEPARTMENT

STAFF

49. The staff situation improved appreciably during the year by the recruitment of additional Agricultural Assistants, but new developments in the Central and Southern Provinces absorbed all the new officers so that it was again impossible to increase the staff in the Northern Province except for work on the Vipya Tung Development Scheme.

50. The posts of Chief Soil Conservation Officer, Irrigation Engineer and Chemist were filled during the year, but at its close no less than 18 first-class appointments remained vacant. The lack of qualified staff handicaps seriously the research and extension work of the Department.

MARKETING

51. The marketing of produce under the provisions of the Marketing of Native Produce Ordinance continued to be satisfactory. In the Central Province 63 native produce markets operated, through which crops were bought without restriction, and 81 markets functioned in the Southern Province. The crops scheduled were the same as in 1947, namely, maize, pulses, wheat, groundnuts, rice, paddy, sorghum, cassava, millets and sesame, and all were purchased under a guarantee of minimum prices issued by Government. The condition of access roads, reported on adversely in the Report for 1947, showed marked improvement in all areas.

52. Tobacco marketing through the Native Tobacco Board worked smoothly, whilst cotton was purchased on behalf of Government through commercial channels.

53. The Maize Control Board bought maize in the Southern and Central Provinces and marketing arrangements were adequate and efficiently conducted.

DEMONSTRATIONS

54. The small-holdings in the Southern Province continued to demonstrate the value of proper land management and crop rotations. Agricultural Instructors throughout the Protectorate conducted their own holdings on model lines, and the healthier condition of their crops as compared with that of local cultivators was most striking.

55. Some progress can be recorded in improved methods of tobacco curing, although the spectacular results previously recorded in Dowa District have not yet been repeated elsewhere.

CHEMISTRY

56. The Agricultural Chemist, Mr. V. R. Greenstreet, was in charge of the Division from the date of his arrival on April 29th. The subordinate staff consisted of three Africans whilst four Standard VIII Laboratory Assistants were appointed during the year.

57. Before leaving the United Kingdom, the Agricultural Chemist attended a refresher course in Agricultural Chemistry at the Imperial College of Science and Technicology and studied tung oil at the Imperial Institute and Paint Research Station. From the date of his arrival in Nyasaland he performed the additional duties of Tung Chemist and later in the year also took over the work of Medical Analyst. In addition, he acted as Executive Officer in charge of fertilizer distribution.

58. *Agricultural Chemistry.* Eight soil samples from the Vipya were analysed and reported on. Routine methods of soil analysis suitable for Standard VIII Laboratory Assistants were devised and soil samples to the number of 158 remained in course of analysis on December 31st. Various samples of groundnuts and groundnut cake were analysed to determine efficiency of oil extraction and relative oil content of different varieties of nuts.

59. *Tung Chemistry.* Some 50 analytical determinations were made on tung kernels, meal and press cake, and over 100 analytical determinations on tung oil, with a view to the preparation of a report on the Technical Aspects of the Commercial Production of Tung Oil in Nyasaland. Comments were also made on a new draft British Standard Specification for tung oil.

60. *Toxicology.* Various exhibits were analysed and reported on in connection with a case of suicide.

61. *Miscellaneous.* Three samples of water were analysed to determine suitability for domestic and industrial use.

EXPERIMENTAL STATIONS, SEED AND FOOD FARMS

62. At Chigweji Seed Farm (Fort Johnston District) shortage of labour and unsuitable weather resulted in poor yields particularly on the newly-opened land. New nurseries were opened for fruit propagation and a small orchard of 60 trees was established of citrus, avocado pear, loquats etc. Five acres of Sahara maize yielded 401 lbs. grain per acre and two acres of sorghum produced 730 lbs. Three acres of Burley tobacco were planted which yielded 80 lbs. per acre of saleable leaf. Although the crop made an excellent start the weather and denitrified soil resulted in the leaf being a poor colour, thin and rather short. Air-curing the crop was most difficult as rain persisted every day and charcoal fires had to be used to keep away mould. It was only possible to select three grades of leaf, the top grade fetching 25d and the lower grades 14d and 12d respectively on the Auction Floor. Four varieties of nicotine tobacco were tried out but unsuccessfully. The nurseries were poor and after planting out the crop failed to make any appreciable growth, flowering at between 12 to 18 inches. Other crops grown were groundnuts, yams, potatoes, sugar-cane, sunn hemp and numerous pulses and grass varieties. All crops were most rigorously selected for seed for the main 1948/49 plantings.

63. Similar crops were grown at the Zomba Investigational Farm where the season was reasonably good. Four varieties of the bunch type of groundnuts (Barberton, Local, Japanese bunch, Spanish bunch) were grown yielding 732 lbs. 124 lbs. 432 lbs. and 385 lbs. per acre respectively.

64. Tea nurseries at Mlanje Experimental Station were generally good and more than sufficient mature plants were available in December for planting out in the new season. There were no diseases of any significance although brown blight was more common than usual. Nurseries of budded citrus seedlings were maintained. Government purchased 700 acres of suitable land on Mimosa Estate for the extension to the Tea Experimental Station, this land being situated five miles nearer Mlanje than the established station. Preliminary opening and developing work on the land had commenced by the end of the year.

65. Clearing commenced in October on the new Kakoma Government Maize Farm in the Lower Mwanza Valley and by the end of the year 20 acres had been cleared and 15 acres planted. All clearing and cultivating was done by hand.

66. At Likuni crops were good with the exception of tobacco; maize yielded 21 tons from 30 acres compared with seven tons from 14 acres in 1947.

67. The main function of the Nchenachena station is to produce seedlings of Arabica coffee for distribution to local growers. Over 3,000 were issued free during the early part of 1948. The Departmental pyrethrum plot on the high Nyika above Nchenachena has become well-established and produced about 400 lbs. dried flower as a first-year harvest.

68. Concerning the ultimate necessity of removing the majority of the cattle from the over-grazed Kasitu Valley to an alternative pasture area, trials were begun with the aid of a grant from the Native Development and Welfare Fund to determine the suitability of the Vipya Grasslands for the purpose. These trials have now continued for two years and have shown that the area is suitable for native cattle all the year round although there is some falling off in condition in the cold weather. The subsidiary crop trial plots show that potatoes do well when given a good dressing of kraal manure and that oats, barley and rye also yield well when manured.

69. Full reports of all work carried out at Experimental Stations are described in Part II of this Report.

MAKWAPALA TRAINING CENTRE

70. The 1946/48 Course students completed their course in August, 19 of the 22 students passing the final examination successfully. Seven of the 25 first-year students failed the interim test and were returned to their districts for posting as ungraded instructors. Land planning was given special attention in class together with a good deal of practical work on the resettlement scheme at Mpemba. Demonstration work played a considerable part in the training of students including every aspect of agriculture from the proper use of a chain to stock demonstrations and butter-making. Particular emphasis was laid on the use of a road tracer, different methods of planting and general and specific methods of soil erosion control. The practical work included nursery work and actual preparation of fields for planting.

71. The total number of Agricultural Instructors who have successfully passed this two-year course since the inception of the Centre in 1940 is now 104.

NATIVE AGRICULTURAL SHOWS

72. The general interest taken in the agricultural shows held in the Southern Province increases each year, a gratifying state of affairs in an agricultural country such as this. At the moment the desire to win a prize appears to be the only incentive but it is obvious that more attention is being paid to the characteristics of the winning exhibits and the progressive improvement in the general standards of exhibits is notable. Full use is made of these shows for Departmental propaganda. During 1948 there was a total of 28 shows and the exhibits increased by 5,272 to 32,434. In most instances they were organized under the chairmanship of the Native Authority with considerable success and it is hoped that when the next shows are held the whole organization, including the financial aspect, will be undertaken by African Show Committees.

73. In the Central Province nine shows were held and the standard of exhibits, although not high, was satisfactory considering that most were only the second to be held. The largest and best Show was at Ncheu with over 2,000 exhibits.

SOIL CONSERVATION

NORTHERN PROVINCE

74. In the Mzimba District in the two northern sections of Native Authorities Katumbi and Chikulamaembe progress in soil conservation, pursued with the aid of money from the Native Development and Welfare Fund, has been only moderately successful and in the former area it is estimated that nearly nine per cent. of the gardens are now cultivated on contour ridges. In Chikulamaembe's area progress was more patchy, being most disappointing in the vicinity of Livingstonia Mission.

75. In the N'goni country the position is very different and despite continued demonstrations of contour cultivation and considerable pressure by the Administration, the general attitude was one of adamant opposition in which the Chiefs participated. General rules have been made prohibiting *visoso*, plot burning and mound cultivation, but except in the northern areas the response was unsatisfactory.

76. The major problem of the District, the reclamation of the Kasitu Valley, could not be tackled owing to lack of staff.

77. In the Chinteché District the position is only better in so far as there are no cattle and *visoso* is scarcely practised.

78. In the Karonga District the firmly-established work done in the Misuku Hills continued on a satisfactory basis. This is the only area in the Protectorate where a comprehensive scheme of work has been carried through and completed to a stage where the local population, after strong early resistance to change, are now fully co-operating, and little supervision is necessary. Ridge cultivation is quite well done in other areas.

79. Serious erosion continues to be caused by bad methods of animal husbandry in the Fort Hill country and south of Karonga on the Lake-shore.

CENTRAL PROVINCE

80. In the Dedza District the Dzenza Land Usage Area continued to develop. Small earth dams were constructed, grass planting in gullies continued, and grazing areas were demarcated by sisal fences. Work extended to eastern Tambala and in the badly eroded area of Kafwafwa a number of storm drains and stone check dams were constructed.

81. Banana planting in gullies continued to be popular and some 32,500 roots were planted.

82. Blue gum planting for the provision of building poles was encouraged and a total of 6,865 young plants were distributed.

83. Progress with grazing control continued to be satisfactory and by the end of the year a total of 57 defined pasturage areas had been established. The improvement in quality and quantity of grazing resulting from the introduced methods of control were very striking.

84. The co-operation of the local population, though still somewhat reluctant in soil conservation matters, improved slightly and a further 2,315 gardens were ridge-cultivated.

85. In the Lilongwe District, Lilongwe Township received some attention, 160 miles of bunds being constructed in the urban area. Tree planting was encouraged by the free issue of planting material and where necessary gully control measures were applied.

86. At Nathenje preliminary work was done to protect the catchment area of the Nathenje Stream and there was also some extension of the grazing control work commenced in 1946. The main object of this scheme is to compare the waterflow in the stream with that of a neighbouring stream draining an unprotected area.

87. At Lingadzi a badly eroded valley is being treated in the same way as the Nathenje Area. Starting at a point where the Fort Manning-Salima road crosses the river, two tributary catchment areas have been completely contour box-ridged, and one result has been that one valley stream which in the past dried in June, was running in August.

88. The voluntary group scheme at Lipenga Village near Fort Manning made satisfactory progress and has excellent value for demonstration purposes.

89. In the Dowa District all gully control in the Mphanda Hill Scheme is complete and all gardens have contour-marker ridges and are box-ridged. At Nchefu and Chiponde operations had reached an advanced stage by the end of the year and equally good results were anticipated. In the Mwera foothills it was impossible to obtain the full co-operation of the Chief and the people adopted an attitude of unwilling submission. This is not unusual and in fact is common with the first impact of attempts to introduce new agricultural methods.

90. In order to protect important river catchment areas 20 square miles of country were closed to cultivation between the Loie and Lumbadzi Rivers, the Kadulamalimba Hill area alongside the Salima road, and six hill tops in the Upper Lipimbi.

91. In Kota Kota, work continued on the foothills but suffered inordinately by non-co-operation on the part of the Native Authorities. In spite of these difficulties some excellent examples of contour box-ridging can be seen in the area.

SOUTHERN PROVINCE

92. A storm drain was constructed on Numbala Hill in the Likangaria area of the Mlanje District, but owing to the lack of adequate supervisory staff grants for other schemes in Mlanje and Chiradzulu had to be held in abeyance. African staff was employed mainly in demonstrating the value of soil-holding vegetation for protecting stream banks and reclaiming gullies. The programme of marking contour ridges on new gardens continued as during 1947, and substantial progress was made, but the response and active co-operation of the people in making up ridges lags far behind the potential rate at which gardens can be marked out by Agricultural Instructors. Propaganda to encourage grass planting on open spaces was pursued actively, and planting material was distributed for this purpose as required.

93. It is estimated that some 2,135 acres of land were contour bunded in this area during the year.

94. Slow but sure progress was made with contour ridge planting in Fort Johnston District but as yet the bulk of the population show little sign of active co-operation. Some 8,000 acres of gardens were contour ridged during the year. Best results were obtained in Native Authority Katuli's area.

95. In Native Authority Chikowi's area of Zomba District excellent progress was made with contour ridging, due largely to active support by the Chief. In other parts of the District substantial progress was made though much remains to be done before the situation can be regarded as satisfactory.

96. In the Domasi Valley Special Area, earlier works were adequately maintained.

97. Substantial progress can be recorded in the Blantyre District, except in Chiradzulu where, owing to lack of staff, it was only possible to maintain earlier works. In order to speed up operations in the District, ridge marking was confined to hilly areas and cultivators on slopes of less than 1 in 7 were merely advised to ridge across the slope. The policy of gully control was also modified by abandoning the system of stone check dams, which proved to be expensive, in favour of planting vegetation for controlling the source of gullies.

98. Satisfactory progress with the programme of work in the Mwanza-Neno country has been reported, especially in the more hilly country.

99. In Lisungwe a concentrated drive was made in conjunction with the Administration to get the area contour box-ridged and progress was satisfactory in spite of strong opposition.

100. The Kuntaja, Lundu and Chigaru areas continued to develop their contour ridge cropping areas, and some progress was made with grazing control. Most marked success was recorded from Native Authority Lundu where cultivators are definitely becoming soil-conservation minded.

101. On the Chikwawa escarpment area of the Lower River District progress has been satisfactory, though many cultivators still persist in their practice of planting on marker bunds. Apart from the people on the Malawe Hills the inhabitants of the Chiromo-Port Herald area, who had previously resisted attempts to introduce ridge cropping, were subjected to a special drive and substantial progress followed vigorous action by the Administration.

102. The main problem in the Cholo District is dense population on very steep hillsides. The contour box-ridging drive was most successful and there are very few gardens that have not been well-protected in this way. The response of local cultivators to soil conservation propaganda was most encouraging, and augurs well for future progress in the District.

EUROPEAN ESTATES

103. Advice was given to a number of Estates, and a considerable quantity of planting material provided for soil conservation measures. In the Southern Province eleven Estates were marked out for contour ridge cropping.

SOIL CONSERVATION COURSES

104. Courses of instruction in soil conservation technique were held at Lunzu in the Southern Province and at Nathenje in the Central Province. The Lunzu Centre was attended by seven Europeans and 38 Africans and at Nathenje eight Europeans and eleven Africans attended. The courses included lectures and practical demonstrations and at both Centres a lively interest was displayed. It is proposed to arrange for courses to be held in each Province annually in future.

SUMMARY

105. A year of substantial progress can be recorded both in the amount of work done, and in the increasing co-operation being obtained from African cultivators, though in respect of the latter the position remains far from satisfactory and much propaganda and educational work will have to be done before the majority of cultivators appreciate the gravity of the situation. The most difficult area is that occupied by the Ngoni of the Northern Province who seem to be quite incapable of recognizing the serious devastation their present methods of cultivation are causing.

106. Lack of European staff prevented the implementation of the full programme of soil conservation work recommended by the Post-War Development Committee, and financed by the Colonial Development Fund, but news had been received by the end of the year that staff for this work would be available early in 1949.

MISCELLANEOUS

GOVERNMENT MAIZE FARMS

107. In conformity with Government's policy of encouraging all non-native agricultural enterprises in the Protectorate to aim at self-sufficiency in the matter of foodstuffs and to render themselves independent of the irregular and undependable supplies forthcoming from Native Trust Land, sites were chosen for four farms designed to produce Government's own maize and other food requirements. It was originally hoped that two farms would suffice, one in each of the Central and Southern Provinces, but it proved impossible to find sufficiently large blocks of land for the purpose and the Kakoma, Rivi-Rivi and Toleza farms were demarcated in the Southern Province and Kalambi in the Central Province. These are located as follows :—

Kakoma	..	..	..	in the Chikwawa section of the Lower River District.
Rivi-Rivi	..	..	..	near Balaka in the Zomba District.
Toleza	..	..	..	near Balaka in the Zomba District.
Kalambi	..	..	..	near Salima in the Dowa District.

108. Bush clearing started on all four farms in the latter part of the year. It is intended that the farms shall be operated on a strictly commercial basis and that they shall be farmed by managers working under the general direction of the Provincial Agricultural Officers. In order to make a beginning without undue delay, officers of the Department were seconded for duty on the farms pending the recruitment and appointment of managers.

KASUNGU FLUE-CURED TOBACCO PROJECT

109. The Report for the year 1947 described the background to this experiment which was continued during the year under review. The acreage under tobacco was increased to 35 but, owing to the depredations of cutworm, yields were depressed and only averaged a modest 460 lbs. per acre. The varieties grown were Yellow Mammoth and Duquesne and the total receipts when the tobacco was sold on the Auction Floor were £1,721. Full details of the experiment are contained in Part II of this Report.

110. Ten acres of food crops were grown and showed that fair yields can be obtained on the residual fertilizer in the soil following a tobacco crop. Experiments are planned to ascertain whether these can be increased economically by additional direct application of fertilizer.

THE VIPYA TUNG DEVELOPMENT SCHEME

111. As this scheme is essentially experimental, the report on the year's work has been transferred to Part II of this Report.

SUMMARY OF LEGISLATIVE CHANGES

112. The Tea Ordinance, 1948, provides for the collection of statistics relating to tea and prohibiting the export of tea seed or plants except to countries being signatories to the International Tea Agreement.

113. The Tobacco (Amendment) Ordinance, 1948, introduced important changes in tobacco legislation. In relation to tobacco grown on Native Trust Land it provides for (a) the establishment of a Price Assistance Fund, (b) the registration of growers and (c) the purchase of tobacco under licence and under stated conditions and restrictions.

114. The Price of Maize Order, 1948, fixed the price to be paid to producers of maize at 1d per 2 lbs. in the Southern Province and 1d per 3 lbs. in the Central and Northern Provinces.

115. The Tobacco (Delivery Quotas) Rules, 1948, were promulgated as a result of shipping congestion at the port of Beira and provided for the regulation of deliveries of tobacco to the Auction Floors.

116. The Plants Protection Order, 1948, controlled the importation from certain parts of South Africa of planting material to which soil is attached. A further Order controlled the importation of tea seeds or plants from Asia, except when certified to be free from Blister Blight disease.

117. The Bollworm Control Rules, 1948, which prohibit for three years the cultivation of cotton within a 5-mile radius of the Makanga Experimental Station, were introduced to safeguard a bollworm control experiment in which the Portuguese Authorities are co-operating.

ACKNOWLEDGEMENTS.

118. A welcome though modest improvement in the staff situation, coupled with some easing of the supply position, enabled the various development schemes for which the Department is responsible to gain impetus and encouraging progress was made during the year. All officers addressed themselves to their manifold duties with their customary zeal and energy and no Director could wish for a more loyal or enthusiastic body of men. I welcome this opportunity to express my thanks and to pay deserved tribute to the keenness, resourcefulness and good spirit which animates the Department. I also gratefully acknowledge the friendly and helpful attitude of the Secretariat in dealing with the work of the Department, and the full co-operation extended to us by the Provincial Administration and the other Department with whom we are closely associated in our endeavours.

C. B. GARNETT
Director of Agriculture

TABLE (6)—EUROPEAN AGRICULTURE, 1948

(Tobacco shown in Tables 8 and 9)

DISTRICT	TEA		TUNG (MONTANA)			TUNG (FORDII)			COFFEE			SISAL		RUBBER		
	Total Acrg.	Acrg. Harv.	Total Acrg.	Acrg. Harv.	Yield lbs. (seed)	Total Acrg.	Acrg. Harv.	Yield lbs.	Total Acrg.	Acrg. Harv.	Yield lbs.	Total Acrg.	Acrg. Harv.	Yield lbs.	Acrg. Planted	Yields, lbs
Lower River	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholo	10,928	9,716	8,732	4,406	1,134,810	1,378	1,206	155,886	68	48	1,058	1,277	720	742,000	—	—
Mlanje	10,198	9,001	735	175	25,196	280	215	6,036	—	—	—	—	—	—	—	—
Blantyre	—	—	954	392	29,233	8	8	3,783	—	—	—	—	—	—	—	—
Zomba	—	—	3,375	977	213,281	8	6	515	—	—	—	—	—	—	—	—
Ft. Johnston	—	—	632	1	400	—	—	—	—	—	—	—	—	—	—	—
Ncheu	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dedza	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lilongwe	—	—	1	1	162	—	—	—	—	—	—	1	—	—	—	—
Dowa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kota Kota	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mzimba	—	—	16	16	546	14	—	—	—	—	—	—	—	—	—	—
Chintche	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,430	114,300
Karonga	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	21,201	18,717	14,445	5,968	1,413,314	1,688	1,435	166,220	69 $\frac{1}{4}$	49 $\frac{1}{4}$	1,308	1,279	720	742,000	1,430	114,300
1947	20,788	—	11,314	4,752	1,239,134	1,354	1,142	348,238	21	20	1,337	1,279	700	552,000	1,430	95,400

(Compiled from returns furnished under The Agricultural Statistics Ordinance.)

TABLE (7)—EUROPEAN AGRICULTURE, 1948 (Continued)

DISTRICT	COTTON		MAIZE		WHEAT		RICE		CHILLIES AND CAPSICUMS		SOYA BEANS	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River ...	113	9,234	36	14,763	—	—	8	8,540	—	—	—	—
Cholo ...	—	—	2,160	429,591	—	—	—	—	3	1,000	1,761	1,094,662
Mlanje ...	—	—	600	207,110	—	—	25	200	—	—	10	9,000
Blantyre ...	—	—	999	385,968	18	470	—	—	—	—	13	3,946
Zomba ...	—	—	819	737,783	—	—	4	685	35	8,182	49	17,539
Fort Johnston ...	—	—	646	107,000	—	—	—	—	—	—	50	32,000
Ncheu ...	—	—	168	103,300	—	—	—	—	—	—	2	250
Dedza ...	40	12,800	164	113,000	3	1,400	—	—	—	—	4	1,900
Lilongwe ...	—	—	2,075	1,944,280	—	—	1	852	—	—	26	15,230
Dowa ...	624	255,760	579	724,469	—	—	—	—	—	—	1	450
Kota Kota ...	—	—	24	10,000	2	800	—	—	—	—	—	—
Mzimba ...	—	—	35	19,360	—	—	1	400	—	—	—	—
Chinteeche ...	—	—	—	—	—	—	—	—	—	—	—	—
Karonga ...	78	70,868	—	—	—	—	—	—	—	—	—	—
TOTAL ...	855	348,662	8,315	4,796,624	23	2,670	39	10,677	38	9,182	1,916	1,174,977
1947 ...	358	79,151	3,556	2,105,278	23	9,401	1	629	94	14,197	1,756	883,040

(Compiled from returns furnished under the Agricultural Statistics Ordinance.)

TABLE (8)—TOBACCO—ESTATE PRODUCTION, 1948.

DISTRICT	Total		Fire-cured		Blue-cured		Air-cured		Burley		Turkish	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower Shire	...	...	...	...	...	...	...	...	...	...	...	...
Cholo	1,322	556,794	—	—	1,322	556,794	—	—	—	—	—	—
Mlanje	60	17,116	—	—	60	17,116	—	—	—	—	—	—
Blantyre	2,234	863,674	490	134,811	1,744	728,863	—	—	—	—	—	—
Zomba	422	342,167	99	193,498	323	148,669	—	—	—	—	—	—
Fort Johnston	2,354	494,488	—	—	2,354	494,488	—	—	—	—	—	—
Ncheu	285	105,412	—	—	210	80,411	75	25,001	—	—	—	—
Dedza	230	90,133	20	4,708	210	85,425	—	—	59	17,034	—	—
Lilongwe	488	200,385	126	51,699	131	57,327	172	74,325	24	9,477	—	—
Dowa	69	31,477	25	12,000	—	—	20	10,000	—	—	—	—
Kota Kota	—	—	—	—	—	—	—	—	—	—	—	—
Mzimba	—	—	—	—	—	—	—	—	—	—	—	—
Chintche	—	—	—	—	—	—	—	—	—	—	—	—
Karonga	—	—	—	—	—	—	—	—	—	—	—	—
Total	7,464	2,701,646	760	396,716	6,354	2,169,093	267	109,326	83	26,511	—	—
1947	5,617	2,549,422	92	61,146	5,027	2,314,739	317	115,680	168	55,057	9	2,800

(Compiled from returns furnished under the Agricultural Statistics Ordinance.)

TABLE (9)—TOBACCO—TENANT PRODUCTION, 1948.

DISTRICT	TOTAL		FIRE-CURED		FLUE-CURED		AIR-CURED		BURLEY		TURKISH	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River ...	—	—	—	—	—	—	—	—	—	—	—	—
Cholo ...	50	26,835	50	26,835	—	—	—	—	—	—	—	—
Mlanje ...	840	676,846	640	616,440	—	—	—	—	—	—	—	—
Blantyre ...	930	656,006	805	597,676	125	58,330	200	60,406	—	—	—	—
Zomba ...	2,677	1,206,054	2,567	1,153,983	10	5,084	—	—	100	46,987	—	—
Fort Johnston ...	140	48,000	—	—	—	—	140	48,000	—	—	—	—
Ncheu ...	1,024	461,464	39	15,000	20	6,836	965	439,628	—	—	—	—
Dedza ...	634	300,063	315	158,853	89	30,210	230	111,000	—	—	—	—
Lilongwe ...	5,952	3,532,512	1,514	1,819,483	21	4,260	2,137	1,113,120	2,280	595,649	—	—
Dowa ...	2,229	730,251	738	312,398	—	—	78	40,237	1,413	377,616	—	—
Kota Kota ...	—	—	—	—	—	—	—	—	—	—	—	—
Mzimba ...	—	—	—	—	—	—	—	—	—	—	—	—
Chintechi ...	—	—	—	—	—	—	—	—	—	—	—	—
Karonga ...	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	14,476	7,638,031	6,668	4,700,668	265	104,720	3,750	1,812,391	3,793	1,020,252	—	—
1947	14,179	6,607,137	6,837	3,484,476	331	109,412	3,643	1,910,553	3,368	1,102,655	—	—

(Compiled from returns furnished under the Agricultural Statistics Ordinance.)

TABLE (10)—LIVESTOCK OWNED BY EUROPEANS AT 31st DECEMBER, 1948.

District		Bulls	Oxen	Cows and Heifers	Calves	Horses	Mules	Donkeys	Sheep	Goats
Lower River	...	8	58	228	93	—	—	—	61	—
Cholo ...	...	55	914	1,587	580	28	1	2	286	15
Mlanje ...	...	27	487	853	443	2	—	3	25	32
Blantyre	...	56	247	985	236	—	—	3	74	142
Zomba ...	...	41	468	1,136	353	9	—	8	112	43
Fort Johnston	...	33	9	58	24	—	—	—	16	74
Ncheu	...	7	21	80	16	—	—	1	—	27
Dedza ...	...	9	40	105	21	—	—	—	36	4
Lilongwe	...	36	256	471	126	4	—	13	154	—
Dowa ...	...	—	—	—	—	—	—	—	—	—
Kota Kota	...	1	8	20	9	—	—	—	6	—
Mzimba	...	1	21	7	1	—	—	—	—	15
Chintech	...	—	—	—	—	—	—	—	—	—
Karonga	...	4	43	57	18	—	—	—	8	—
TOTAL	...	278	2,576	5,587	1,920	43	1	30	778	353
1947	...	183	1,841	4,414	1,531	19	10	71	1,036	492

(Compiled from returns furnished under the Agricultural Statistics Ordinance.)

TABLE (11)—NATIVE AGRICULTURE, 1948.

The following table shows the amounts of produce grown on Native Trust Land which were purchased at the Native Produce Markets during 1948

DISTRICT	AMOUNT IN SHORT TONS							
	Maize	Seed Cotton	Rice (Paddy)	Wheat	English Potatoes	Ground-nuts	Tobacco	Pulses
Port Herald ...	22	1,940	89	—	—	17	—	10
Chikwawa ...	21	4,853	—	—	—	—	—	—
Cholo ...	141	—	2	10	—	9	—	112
Mlanje ...	887	—	340	8	—	109	1,157	610
Blantyre ...	93	375	67	217	—	139	82	196
Chiradzulu ...	—	—	—	—	—	—	—	129
Zomba ...	1	—	35	—	—	494	347	4
Fort Johnston ...	261	73	1	—	—	460	46	—
Ncheu ...	86	8	—	191	34	102	372	162
Dedza ...	2,062	136	—	9	106	89	280	132
Lilongwe ...	3,202	—	6	—	5	471	2,564	4
Dowa ...	326	37	—	—	—	124	1,817	46
Kota Kota ...	70	31	764	—	5	4	848	26
Mzimba ...	420	—	—	12	—	1	—	31
Chinteché ...	—	—	—	—	—	—	—	—
Karonga ...	32	405	938	—	—	—	—	28
TOTAL ...	7,624	7,858	2,242	447	150	2,019	7,513	1,790
1947 ..	8,384	6,910	1,996	362	131	1,861	8,631	1,410

TABLE 12.—SOIL CONSERVATION ON EUROPEAN ESTATES

AS AT 31st DECEMBER, 1948

DISTRICT	<i>Yards of storm drains constructed</i>		<i>No. of acres ridged</i>	<i>No. of acres banded</i>
Blantyre ..	..	167,053	4,038	1,060
Chinteché ..	..	—	—	—
Cholo ..	..	146,021	8,386	20,487
Dedza ..	..	13,200	631	242
Dowa ..	..	1,580	2,760	3,765
Fort Johnston ..	..	—	834	400
Karonga ..	..	—	—	—
Kota Kota ..	..	125	20	5
Lilongwe ..	..	27,310	6,441	13,882
Lower River ..	..	—	43	85
Mlanje ..	..	18,470	1,687	9,771
Mzimba ..	..	500	86	60
Ncheu ..	..	600	1,120	295
Zomba ..	..	199,150	2,994	2,841
TOTALS ..	..	574,009	29,040	52,893

(Compiled from returns furnished under the Agricultural Statistics Ordinance.)

